FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

March 11 to March 17, 2012 (Week 11)

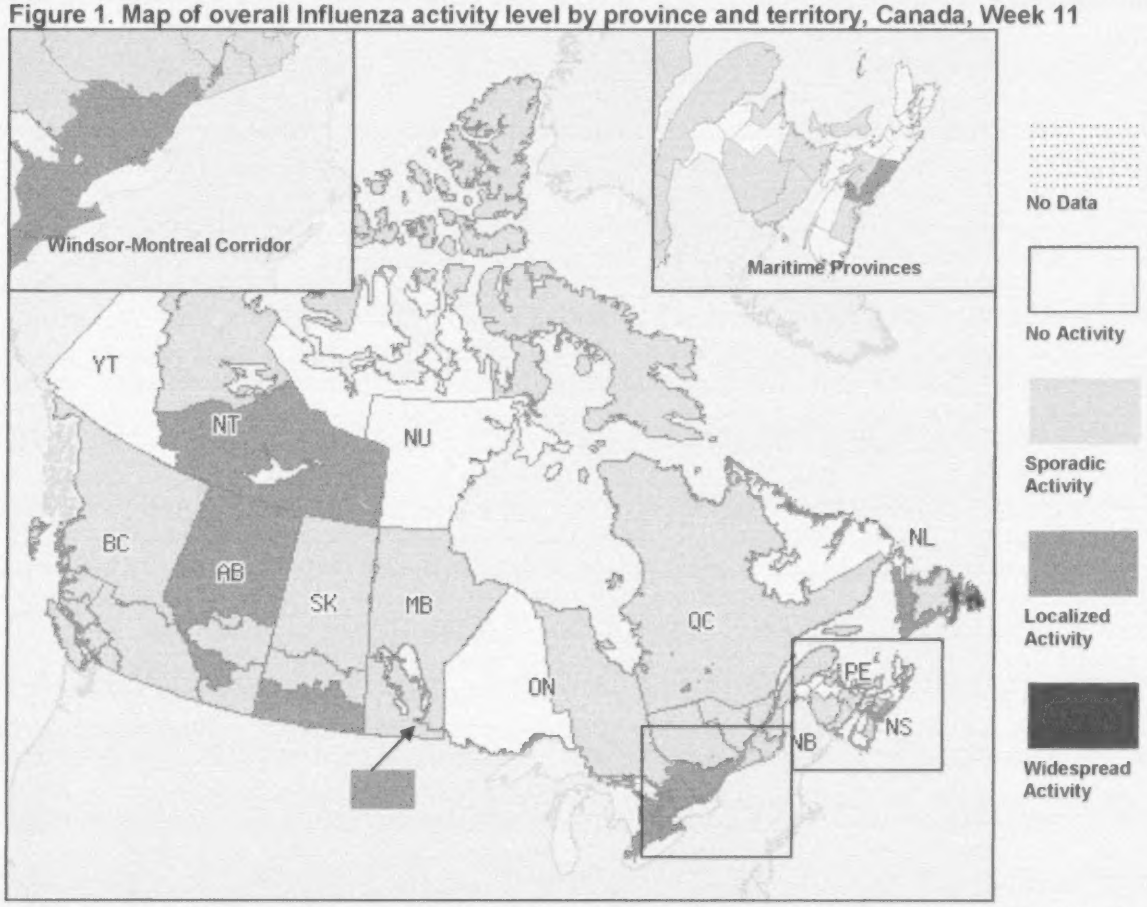
Overall Influenza Summary

- Influenza activity in Canada continued to increase overall compared to the previous week; most indicators (such as laboratory detections, outbreaks and hospitalizations) showed higher levels in week 11 compared to the previous week. Certain regions in the country (in ON, the Prairies and the Atlantic Region) are showing higher levels of activity compared to other regions.
- Fifty-four outbreaks of influenza or ILI were reported this week (31 in LTCFs, 5 in hospitals, 3 in schools and 15 others).
- In week 11, 1,219 laboratory detections of influenza were reported (11.6% - A(H3); 8.9% - A(H1N1)pdm09; 22.2% - unsubtyped and 57.3% influenza B). The percent positive for influenza B detections increased in all regions in Canada except in BC in week 11 compared to the previous week.
- 107 influenza-associated hospitalizations were reported this week (54 paediatric through IMPACT surveillance and 53 adult through aggregate surveillance)
- The ILI consultation rate declined compared to the previous week but remains within expected levels.

Influenza Activity (geographic spread) and Outbreaks

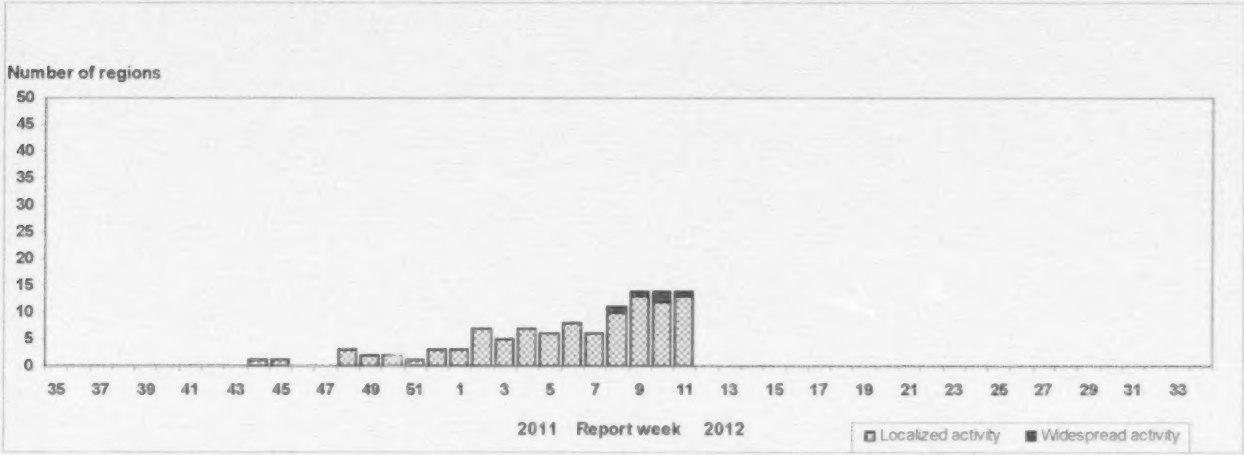
In week 11, 1 region reported widespread influenza activity (NL), 13 surveillance regions (within AB, SK, MB, ON, QC, NS, NL & NT) reported localized activity and 28 regions (within all provinces and territories except in YT) reported sporadic influenza activity (see Figure 1). Fifty-four outbreaks of influenza or ILI were reported this week: 31 in long-term care facilities (1 in SK, 2 in MB, 21 in ON & 6 in NB), 5 in hospitals (3 in ON, 1in QC & 1 in NL), 3 in schools (in AB) and 15 others (13 in ON & 2 in NL) (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 11



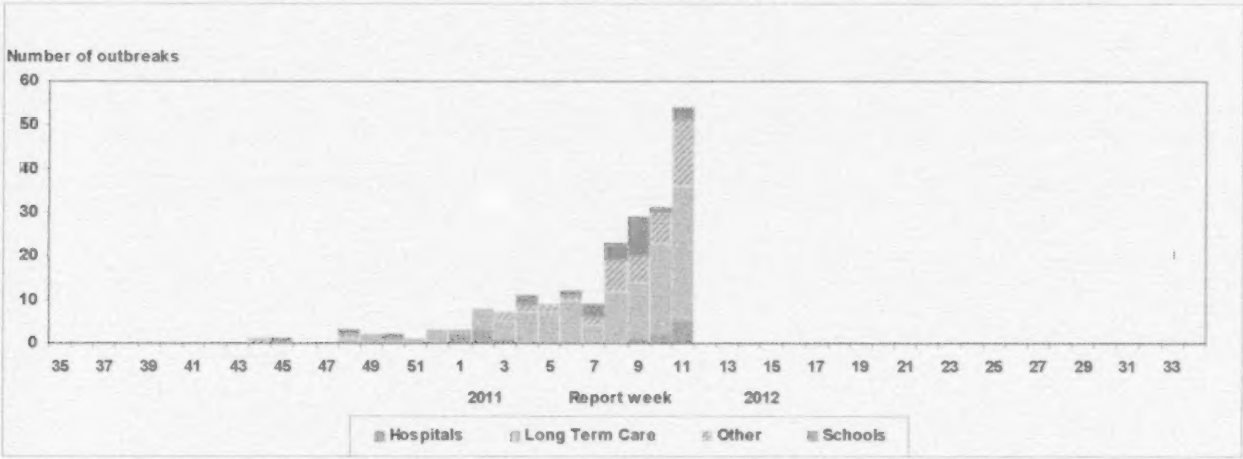
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to increase and was 23.4% (1,219/5,207) for week 11 (Figure 4 & 5). The proportion of positive detections for influenza B continued to increase while the proportion positive for influenza A slightly declined in week 11. To date this season, influenza B remains the predominant virus type circulating in Manitoba, Ontario and all of the Atlantic provinces except New Brunswick.

Cumulative to date of influenza virus detections by type/subtype is as follows: 55.9% influenza A (42.3% - A(H3); 18.4% - A(H1N1)pdm09; 39.3% - unsubtyped) and 44.1% influenza B (Table 1).

Detailed information on age and type/subtype were received on 3,486 cases to date this season (Table 2). The proportions of cases by age group are as follows: 21.5% were < 5 years; 17.8% were between 5-19 years; 23.8% were between 20-44 years; 15.3% were between 45-64 years of age; 21.4% were >= 65 years; and 0.2% with age unknown. The largest proportion of influenza A cases were between 20-44 years of age (28%) and those >=65 years of age (23%). The largest proportion of influenza B cases were under 20 years of age (51%).

In week 11, the proportion of tests positive for RSV declined considerably to 10.9%. Percent positives for RSV were highest in the Atlantic Region for week 11. The percentage positive for the other respiratory viruses remained fairly similar compared to the previous week (parainfluenza-1.1%; adenovirus-1.6%; human metapneumovirus-5.7%; rhinovirus-4.7%; and coronavirus-4.8%) (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	March11 to March 17, 2012						Cumulative (August 28, 2011 to March 17, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	25	0	17	6	2	10	413	0	358	49	6	57
AB	96	0	54	19	23	9	631	0	491	84	56	55
SK	34	0	26	7	1	1	342	0	248	26	68	3
MB	9	0	0	0	9	29	28	0	8	1	19	39
ON	111	0	27	59	25	387	568	0	144	311	113	1231
QC	230	0	9	13	208	213	1030	0	30	76	924	852
NB	7	0	3	4	0	16	37	0	9	14	14	24
NS	0	0	0	0	0	16	2	0	0	0	2	34
PE	1	0	0	1	0	1	2	0	1	1	0	8
NL	7	0	4	0	3	17	19	0	9	4	6	125
Canada	520	0	140	109	271	699	3072	0	1298	566	1208	2428

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (Mar. 11 to Mar. 17, 2012)					Cumulative (Aug. 28, 2011 to Mar. 17, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	55	7	10	38	77	528	111	205	212	469
5-19	35	7	12	16	61	310	36	179	95	515
20-44	89	12	17	60	57	769	150	302	317	336
45-64	74	12	9	53	47	491	91	163	237	216
65+	77	6	31	40	99	613	40	393	180	378
Unknown	2	1	1	0	0	9	4	4	1	0
Total	332	45	80	207	341	2720	432	1246	1042	1914

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

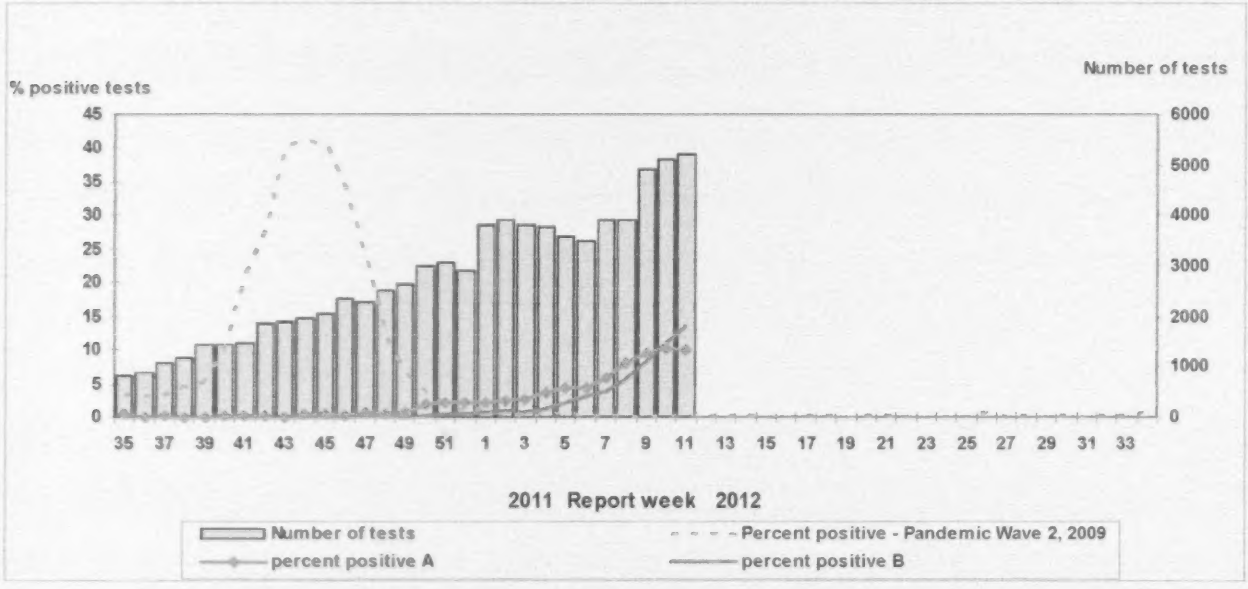
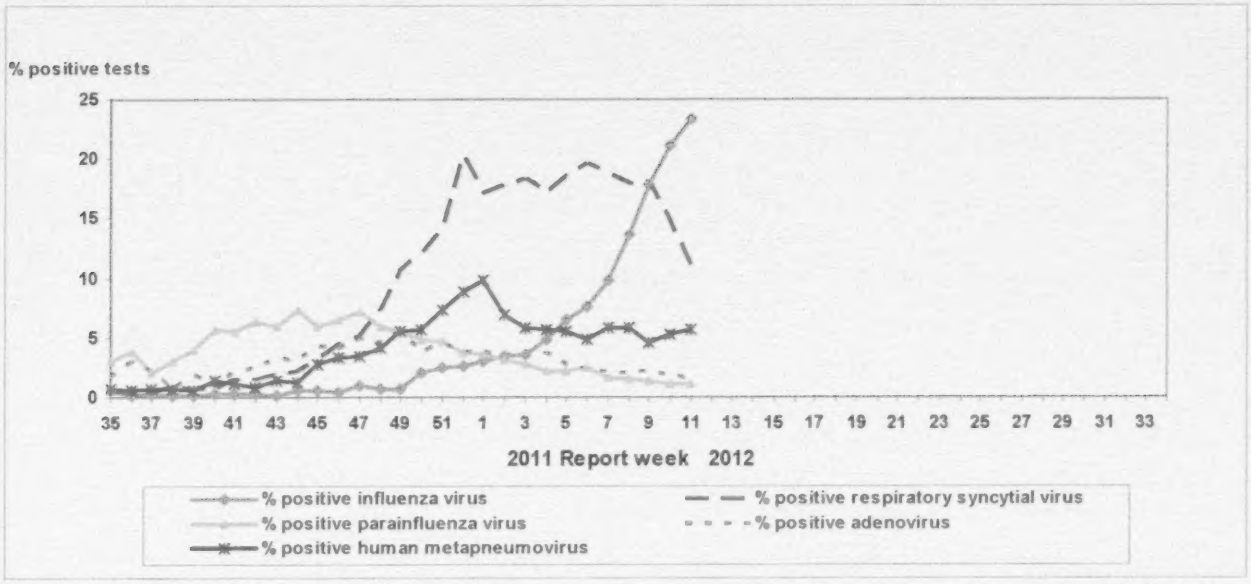


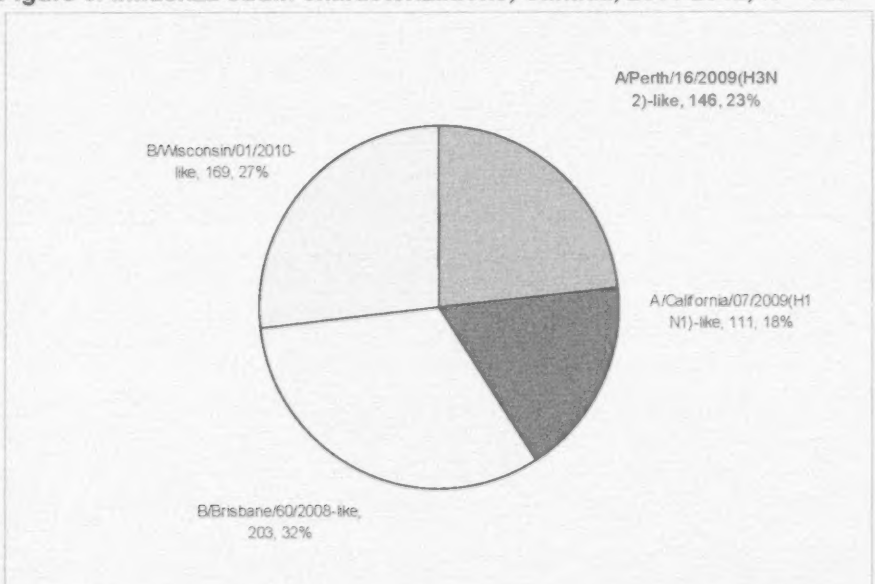
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012


% positive tests
25
20
15
10
5
0
35 37 39 41 43 45 47 49 51 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2011 Report week 2012
% positive influenza virus
% positive parainfluenza virus
% positive human metapneumovirus
% positive respiratory syncytial virus
% positive adenovirus

Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 629 influenza viruses (146 A/H3N2, 111 A/H1N1 and 372 B). Of the 146 A/H3N2 viruses (from BC, AB, SK, MB, ON & QC), 130 (89.0%) were antigenically similar to A/Perth/16/2009 while 16 (11.0%) viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 111 A/H1N1 viruses characterized (from BC, AB, SK, ON, QC & NB), 110 (99.1%) were antigenically similar to A/California/07/2009 and 1 (0.9%) virus tested showed reduced titer with antiserum produced against A/California/07/2009. Of the 372 influenza B viruses characterized, 203 (54.6%) (from BC, AB, SK, ON, QC, NB, NS & NL) were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 167 tested showed reduced titer with antiserum produced against B/Brisbane/60/2008. The remaining 169 (45.4%) influenza B viruses (from BC, AB, ON, QC, NB, NS & NU) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 629



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 591 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 589 influenza viruses for resistance to zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 330 influenza A viruses (184 H3N2 and 146 H1N1) were tested for amantadine resistance; all but 1 influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

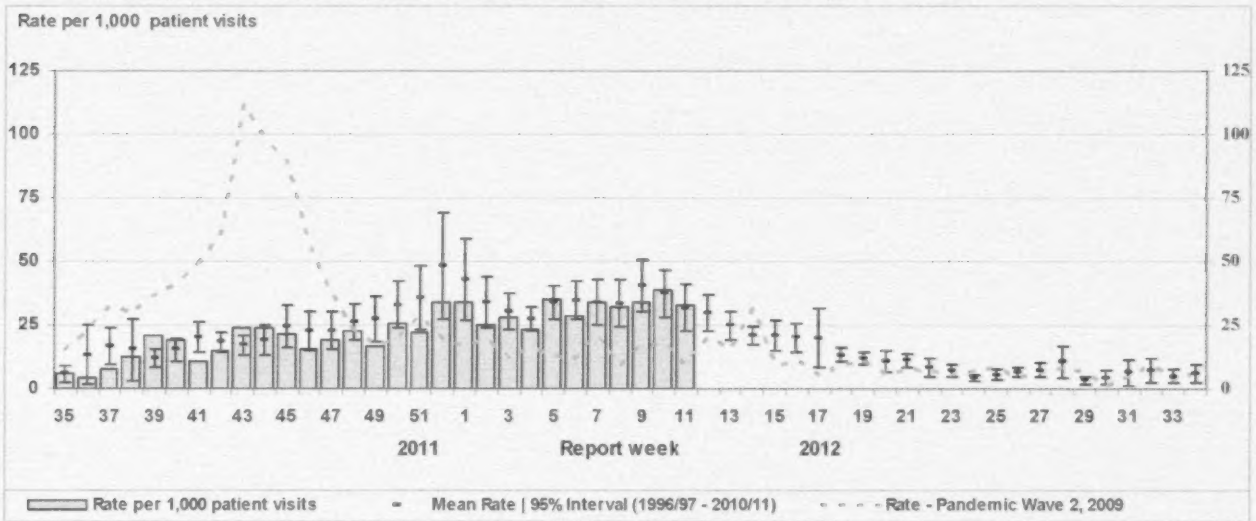
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	128	0	127	0	184	183 (99.5%)
A (H1N1)	118	0	117	0	146	146 (100%)
B	345	0	345	0	NA*	NA*
TOTAL	591	0	589	0	330	329 (99.7%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate declined from the previous week (32.6 ILI consultations per 1,000 patient visits in week 11) and remains within the expected levels for this time of year (Figure 7). The highest consultation rates this week were observed in children under 5 (92.0/1,000 visits) and those 5 to 19 years old (78.0/1,000 visits).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 11, 54 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. Eleven hospitalizations were due to influenza A (unsubtyped) (in BC, AB, ON & QC); 4 were due to A(H1N1) (in ON & QC); 4 were due to A(H3N2) (in AB) and 35 were due to influenza B (in BC, MB, ON, QC, NS & NL). In addition, 2 paediatric deaths were reported in week 11; both were associated with influenza B infection; 1 case had an underlying medical condition; both were reported in ON.

To date this season, 299 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, MB, ON, QC, NS & NL); 146 (48.8%) were due to influenza A and 153 (51.2%) were due to influenza B. The proportion of cases by age group is as follows: 15.4% among infants <6 months of age; 20.1% among children 6-23 months of age; 27.8% were between 2-4 years; 25.1% were between 5-9 years; and 11.7% were between 10-16 years. Two influenza-associated deaths have been reported through the IMPACT network this season to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associate paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)
In week 11, 107 new laboratory-confirmed influenza-associated hospitalizations were reported of which 54 (50.5%) were in those < 20 years of age and 53 (49.5%) in those ≥ 20 years of age. The hospitalizations were reported in AB (13), SK (1), MB (4), ON (76), NS (7) and NL (6). Of the 107 hospitalizations, 3 required admission to ICU (2 in AB & 1 in SK). In addition, 7 influenza-associated deaths were reported: 6 in ON (5 adults, 1 child) and 1 in SK (adult).

To date this season, 651 influenza-associated hospitalizations have been reported from 6 provinces (AB, SK, MB, ON, NS & NL) and 2 territories (YT & NT). The proportion of cases by age group is as follows: 11.0% were in those <1 year of age; 20.2% were in those 1-4 years of age; 17.1% were in those 5-19 years of age; 12.3% were in those 20-44 years of age; 14.8% were in those 45-64 years of age and 25.5% were in those ≥ 65 years. The proportion of cases by influenza type and subtype is as follows: 14.3% were A(H1N1)pmd09; 22.1% were A(H3N2); 14.0% were influenza A unsubtyped; 49.6% were influenza B and 0.5% had influenza A and B co-infection.

To date there have been 22 hospitalizations requiring ICU admission reported (from AB, SK, MB, & NL) of which 27.1% were < 20 years of age and 63.6% were ≥ 20 years of age. In addition, 22 influenza-associated deaths have been reported to date this season (from SK, MB, & ON) of which 9.1% were among those < 20 years of age & 86.4% in those ≥ 20 years of age. Of the adult deaths, 80.0% were in those ≥ 65 years of age.

Note: Some of the hospitalizations and deaths reported in those ≤ 16 years of age may also have been reported in the IMPACT summary above if the hospitalization or death occurred in one of the 12 IMPACT hospitals. The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces: BC, & QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: Active influenza transmission continued in the temperate regions of the Northern Hemisphere with increasing activity in North America, northern China and several countries in Europe. A few countries in southern Europe and North Africa have peaked as well as Japan and the Republic of Korea. Most countries of the tropical zone reported low levels of influenza activity. The most commonly detected virus type or subtype throughout most of the temperate areas of northern hemisphere temperate zone has been influenza A(H3N2). In Mexico and Central America, influenza A(H1N1)pdm09 is the predominant subtype circulating; China and the surrounding countries are still reporting a predominance of influenza type B virus. *World Health Organization influenza update*

United States: In week 10, the CDC reported that 23.2% (1,099/4,742) of influenza tests were positive of which 95.5% were for influenza A viruses and 4.5% for influenza B. Since October 1, 2011, the CDC characterized 626 influenza viruses: 127 A/H1N1, 410 A/H3N2 and 89 B. Of the 127 A/H1N1 viruses characterized, 125 (98.4%) were A/California/7/2009(H1N1)-like and 2 (1.6%) showed reduced titers with antiserum produced against A/California/7/2009. Of the 410 influenza A/H3N2 viruses that were characterized, 319 (77.8%) were A/Perth/16/2009-like and 91 (22.2%) showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 89 influenza B viruses that were characterized, 40 (44.9%) were B/Brisbane/60/2008-like (B/Victoria lineage) and 49 (55.1%) belonged to the B/Yamagata lineage. The proportion of outpatient visits for ILI was 2.2%, which is below the national baseline. Widespread influenza activity was reported in 15 states, 22 states reported regional influenza activity, 3 states reported localized influenza activity, while the rest reported either sporadic or no activity. Five influenza associated-pediatric deaths have been reported this season to date.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 11, influenza activity continued to decrease in many countries in the WHO European Region. Although influenza activity is generally decreasing, consultation rates are still above thresholds in half of the countries reporting. Influenza A(H3N2) continues to be the dominant virus in circulation, with some influenza B and a few A(H1N1)pdm09 detections being reported. Of the 1,482 ILI/ARI samples tested in week 11, 588 (39.7%) tested positive for influenza, of which 82.1% were for influenza A and 17.9% for influenza B. Since week 40, 660 influenza viruses have been characterized antigenically: 17 were A/California/7/2009(H1N1)-like; 556 were A/Perth/16/2009(H1N1)-like; 11 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage), 12 were B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage) and 64 were B/Brisbane/60/2008-like (B/Victoria/2/87 lineage). *EuroFlu weekly electronic bulletin*

Human Avian Influenza Updates

Since March 17, 2012, the WHO reported one new case of human A/H5N1 avian influenza infection from Egypt. The case was a 40-year old female from Dakahlia Governorate who developed symptoms on March 6, 2012, hospitalized on March 12 and died on March 15. Investigations into the source of infection indicate that the case had exposure to sick backyard poultry. *WHO Avian influenza situation updates*

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2011-2012 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2011-2012 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2011-2012 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.